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SAVING METAL IN SOVIET MACHINE TOOL BUILDING;  
PRECISION CASTING DEVELOPMENTS

MUST TAP HIDDEN RESERVES -- Minsk, Sovetskaya Belorussiya, 1 Nov 52

The increase in labor productivity at the Gomel Machine Tool Building Plant imeni Kirov in 1948 was 19.3 percent over that of 1946; 91.3 percent; in 1950, 117.6 percent; and in 1951, 161.4 percent.

As a result of the work done on the modernization of machine tools, training of workers in Stakhanovite schools, etc., the number of machine tools converted to high-speed methods increased from eight in 1948 to 33 at present; the number of high-speed workers, from 12 to 60; and the average cutting speed, from 30 to 140 meters per minute.

However, an analysis of the work of the enterprise during the past few years indicates that there are still many untapped internal reserves. For example, there are many possibilities for improving the organization of production, work conditions, technology and techniques, and the cultural and technical level of workers. Little has been done about reducing losses due to rejects.

To uncover the reserves of the enterprise completely and to utilize them practically, a plan of organizational and technical measures must be carefully worked out. Work on the development of this plan has been started at the plant. Such a plan should become a basic guide for the fulfillment of tasks assigned by the Fifth Five-Year Plan. -- V. Varnaukhov, chief engineer, Gomel Machine Tool Building Plant imeni Kirov

DRIVE TO SAVE METAL GETS RESULTS -- Kiev, Pravda Ukrainy, 14 Nov 52

Under the direction of Geyets, chief designer at the Kiev Machine Tool Plant imeni A. M. Gor'kiy, Kobus, a designer, developed a lighter-weight bed for series-produced multispindle automatics and semiautomatics. As a result of this modification, an improved design was obtained and the weight of the bed was decreased by 500 kilograms. This measure alone will effect a saving of 100 tons of metal per year, from which 14 automatic machine tools can be built.

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In the effort to replace certain nonferrous parts with ferrous metal, Bakulenko, senior designer, was able to save 8 kilograms of nonferrous metal (more than 30 percent) for every spindle drum unit.

In 1952, the first heavy four-spindle automatic was manufactured at the plant. Somewhat later, heeding the directives of the 19th Party Congress, the plant personnel, headed by Tereshchenko, leading designer, completely redesigned the bed, spindle block frame, transmission housing, and other parts. Thus, this series-produced machine tool will weigh 3 tons less, and its operating qualities will be considerably improved.

TAKE MEASURES TO DECREASE METAL CONSUMPTION -- Minsk, Sovetskaya Belorussiya, 26 Nov 52

Measures are being taken at the Vitebsk Machine Tool Building Plant imeni Kirov to increase production. Workers are searching for supplementary reserves which would decrease the weight of machine tools and save metal in each item produced.

On 24 November, in the forging shop, a group of fitter-assembly workers completed the installation of the 26-ton anvil block on a die hammer. Die forging is now replacing free forging in the manufacture of a number of parts, and thus metal consumption is being decreased.

In drawings made by a group of designers headed by Solodukhin, the weight of a centerless grinding machine has been decreased. By decreasing the thickness of the bed walls alone, the consumption of metal in the manufacture of each sport has been reduced by 100 kilograms.

INTRODUCES MEASURES TO INCREASE PRODUCTIVITY AND SAVE METAL -- Minsk, Sovetskaya Belorussiya, 28 Nov 52

In 1952, the Vitebsk Machine Tool Building Plant imeni Komintern has introduced special equipment for use in production, namely, machine tools for processing bevel and spur gears. Previously, plant personnel machined bevel gears on universal milling machines with the use of a dividing head. Rejects in this operation frequently reached 50 percent. Now, with the machining of gears on a special gear shaper, rejects are being eliminated.

The introduction of a shaving machine has eliminated defects in machining spur gears. Grinding holes in gears after heat treatment resulted in a large number of rejects. This situation has been corrected by installing a special apparatus for high-frequency hardening of gears. As a result, in addition to the curtailment of rejects, the grinding operation has been obviated and labor consumption has been considerably decreased.

A great deal is being done at the plant on the introduction of high-speed methods of metal cutting. For example, in processing certain items, the use of a cut-off tool with a special geometry has effected an increase in labor productivity of four to seven times in cut-off operations.

The introduction of high-speed methods of metalworking has increased the average cutting speed 10 percent. For example, whereas the average speed of lathe work was 75 meters per minute in 1951, it reached 83 meters per minute in 1952.

The wide use of one-piece multiple face and side milling cutters for cutting racks and pinions has increased labor productivity in these operations 3.5 times.

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A counter-shrinkage gate flow system introduced at the foundry has reduced rejects because of shrink holes by 80 percent.

A system of shop cost accounting at the plant is contributing to the enterprise's profitable operation.

A great deal of attention is being given to the saving of metal. The issuance of special instructions for keeping account of metal had a stimulating influence on all personnel. In 9 months, more than 50,000 rubles' worth of metal were saved as a result of useful suggestions alone. At the same time, more than 7 tons of cast iron and about 2.5 tons of steel were saved.

The restoration of worn-out and broken tools has been organized at the plant. Hundreds of kilograms of high-cost tool steel are being saved. More than 5 tons of steel have been saved by forging instead of cutting and by changing the size of blanks.

Serious attention is also being given to raising the educational and technical level of plant personnel, by the organization of seminars, special courses, and evening schools.

Although every effort is being made to bring forth hidden resources, in actual practice the enterprise still has many shortcomings, the chief of which is its last-minute speed-up in the last third of each month. The party organization and plant managerial personnel ordered the enterprise to achieve rhythm in its operations. As a result, about one third of the month plan was fulfilled in the first third of both October and November -- I. Nikanorov, director, Vitebsk Machine Tool Building Plant imeni Komintern.

TECHNICAL ACHIEVEMENTS CONTRIBUTE TO SUCCESSFUL PLANT OPERATION -- Moscow, Moskovskaya Pravda, 12 Nov 52

A brigade of designers at the Yegor'yevsk Komsomolets Plant, headed by Koblov, Stalin Prize winner, has designed a group of gear hobbing semiautomatics for processing gears from 10 to 1,000 millimeters in diameter. A brigade under the leadership of Yevdak has designed heavy gear shaping and gear shaving semiautomatics.

A precision, high-duty gear grinding semiautomatic, operating according to a new principle, has been perfected for grinding small-module gears and gear cutting tools (shaping and shaving) which are necessary for precision machine and instrument building.

In 1952, the plant perfected three models of precision machine tools and considerably increased the accuracy of universal machine tools.

The plant's research laboratory has developed a theory of accuracy for gear-cutting machines. On the basis of this theory, an original recording device has been developed by means of which all elements of inaccuracy of machine tool operation can be determined easily.

The technical laboratory has organized the production of bimetallic bushings by a method of fusing bronze with the use of high-frequency currents. Utilizing this method, all rejects have been completely eliminated.

High-speed cutting has been successfully applied. In machine shop No 2, more than 70 percent of the lathes have been modernized. High-speed drilling and grinding are being used extensively at the plant; cutters with mineral blades are being introduced. In 10 months of 1952, more than 1,200 type designations of attachments and tools have been introduced for use in production.

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Several complex brigades have been created to solve a number of technical problems. These include two brigades on saving metal and one on improving the processing of precision dividing pairs for the Model 5832 gear grinding machine. These brigades are composed of designers, technologists, foremen, and Stakhonovites.

At present, there is not a shop, section, or worker at the plant that is not fulfilling its socialist obligations.

The Komsomolets Plant will celebrate its 25th anniversary in 1952. It was built on the basis of a training workshop in the first years of the country's industrialization. Since then, it has manufactured more than 13,000 machine tools of different designs. -- G. Salikhov, chief engineer, Yegor'yevsk Komsomolets Plant

STRESS NEED TO DEVELOP FIELD OF PRECISION CASTING -- Moscow, Moskovskaya Pravda, 19 Oct 52

Although progress has been made in the field of precision casting, many shortcomings still exist in this method of production. For example, at the Moscow Kalibr Plant a small section for steel casting has been created, where parts of up to 300 type designations have been perfected. However, plant managerial personnel are not giving this section enough attention. Production here has been organized in a haphazard manner. The section is not being provided with necessary materials and equipment, and the manufacture of precision castings is not being expanded.

Similar shortcomings exist at the precision casting shop of the Moscow Tool Plant.

The Moscow Krasnyy Proletariy Plant imeni Yefremov (Surguchev, chief engineer, and Gonichenko, chief technologist) has an adequate products list of machine-tool parts to warrant their manufacture by the precision casting method. Yet, rather than manifest initiative by the organization of a new method of production, the managerial personnel of this plant find it more convenient to procure castings from other sources. They obstinately fail to fulfill the orders of the Ministry of Machine Tool Building USSR to create a precision casting shop.

Managerial personnel at the Yegor'yevsk Komsomolets Machine Tool Building Plant (Kharitonov, director, and Salikhov, chief engineer) have taken only organizational and technical measures in this matter. A shop for precision casting has not yet been created.

Managerial personnel at the Moscow Grinding Machine Plant have displayed a similar attitude toward this progressive production process. The mastery of precision casting was started here in 1950, but it was suspended in 1951.

In the production of precision castings, regular work has not been done on the unification and typification of materials, technology, or equipment. There is no regular training of personnel (engineering and technical workers and workers of leading trades) for precision casting production.

To broaden the introduction of this leading technology, it is first necessary to organize, with the help of the Central Design Bureau of Foundry Machine Building, Ministry of Machine Tool Building, the planning of basic equipment for mechanizing the production of precision castings, and to set up their mass production.

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Individual handbooks on precision casting must be developed and published.

With complete mechanization and automatization of the precision casting technological process, the manufacture of parts, even in small-series production, will be considerably more economical than the manufacture of parts by pressing.-- S. Levichev, chief metallurgist, Glavstankoprom (Main Administration of Machine Tool Building Industry), Ministry of Machine Tool Building USSR

Minsk, Sovetskaya Belorussiya, 26 Oct 52

Precision casting of a most complicated part, the frame of a micrometer, has been mastered at the Moscow Kalibr Plant.

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